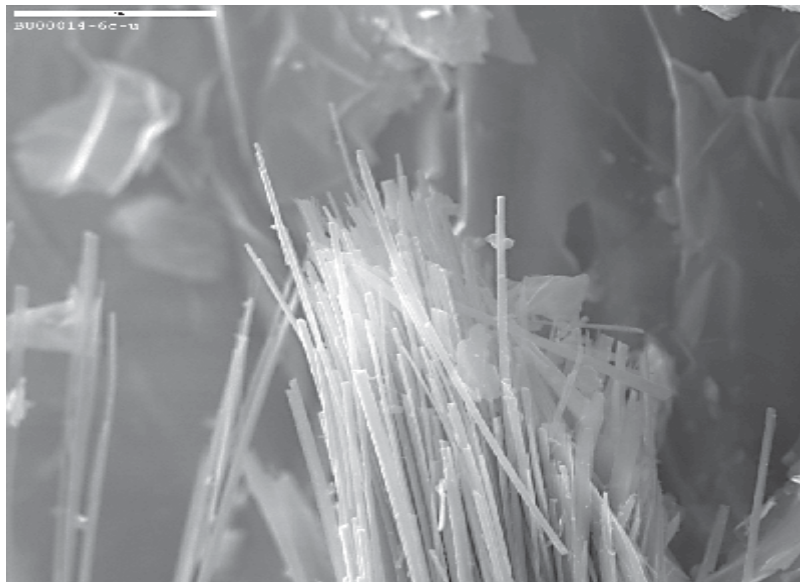


MONTANA ASBESTOS WORK PRACTICES *And* PROCEDURES MANUAL



2005

State of Montana
Department of Environmental Quality
Permitting & Compliance Division
Waste & Underground Tank Management Bureau
Asbestos Control Program
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TABLE OF CONTENTS

1.0	Introduction and Purpose of this Manual	3
2.0	Definitions	4
3.0	Asbestos Inspection Requirements Prior to Demolition or Renovation Activities of Buildings	7
4.0	Application for a Montana Asbestos Abatement Project Permit and NESHAP Demolition/Renovation Notification	10
5.0	Asbestos Abatement Work Practices and Procedures	12
5.01	Gross Removal/Full Containment	12
5.02	Work Practices for Removal of RACM Using a Glove Bag	18
5.03	Asbestos Abatement Using Mini-Enclosure Procedures	19
5.04	Work Practices for Enclosure of RACM	20
5.05	Work Practices for Encapsulating RACM	21
5.06	Work Practices for RACM Related Dismantling Projects of Piping and Ductwork (Wrap and Cut)	22
5.07	Work Practices for RACM Related Demolition Projects (Wrecking, Razing, Burning, Lifting, Moving of Buildings)	22
5.08	Work Practices for Projects in Tunnels and Crawlspace	23
5.09	Asbestos Waste Transportation and Disposal	24
6.0	Final Visual Inspection and Final Air Clearance Sampling and Testing	27

SECTION 1.0

INTRODUCTION AND PURPOSE OF MANUAL

This *Montana Asbestos Work Practices and Procedures Manual* (Manual) is adopted and incorporated by reference in the Administrative Rules of Montana, Title 17, Chapter 74, Subchapter 3. Its purpose is to provide guidance to the rules approved in June 2006. The Manual identifies practices and procedures that satisfy the Department of Environmental Quality's (DEQ) requirements for inspecting for asbestos, conducting asbestos projects, and clearing asbestos projects.

The DEQ is responsible for administering the Asbestos Control Act which requires the Department to make rules governing the review and issuance of asbestos project permits, facility or annual asbestos permits, asbestos-related accreditations, asbestos training course provider approval and the courses taught. The DEQ is also responsible for establishing asbestos abatement work practices, penalties, injunctions, cleanup orders, emergency actions, and inspection procedures.

The Asbestos Control Program (Program) is also the program within the DEQ that administers the Environmental Protection Agency's National Emission Standards for Hazardous Air Pollutants (EPA NESHAP). EPA authorized the state of Montana to administer portions of the asbestos NESHAP in 1977 with revisions in 1988. (Accreditation delegation was made in 1995.) The NESHAP contains standards that regulate building demolitions and renovations, asbestos disposal sites, and other sources of asbestos emissions. It is the NESHAP that requires an asbestos inspection prior to demolition or renovation activities. Since the rules adopt the NESHAP by reference, the NESHAP is enforced by the Program.

This Manual's primary objective is to define work practices and control measures for asbestos abatement activities; however, it also provides guidance in additional areas of definitions, inspection, accreditation, training courses, and final clearance monitoring. The test methods and requirements contained in this Manual are current as of the date of issuance. Changes to the Manual will follow appropriate rule making procedures. The contents of the Manual have the same effect as rules.

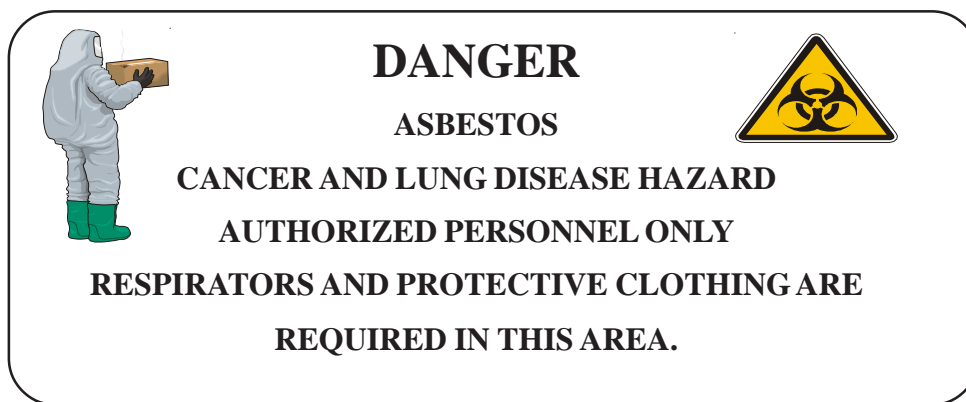
Local governments, landfill operators, Occupational Safety and Health Administration (OSHA), project specifications, and others may impose additional requirements.

SECTION 2.0

DEFINITIONS

The following definitions define terms used in this Manual. They are a continuation of those definitions found in the Rule.

- 2.01 ADEQUATELY WET** means sufficiently mixed or penetrated by liquid to prevent the release of particulates. If visible emissions are observed coming from asbestos-containing material (ACM), then that material has not been adequately wetted. However, the absence of visible emissions is not sufficient evidence of being adequately wet.
- 2.02 AMENDED WATER** means water to which surfactant (wetting agent) has been added to increase the ability of the liquid to penetrate ACM.
- 2.03 APPROPRIATE PROTECTIVE CLOTHING** means protective outer clothing worn by abatement personnel engaged in an asbestos project including, but not limited to, disposable coveralls, head and foot covers.
- 2.04 APPROPRIATE RESPIRATOR** means an appropriate air purifying or supplied air respirator providing protection against radionuclides and against dust, fumes, and mists in air and which provide appropriate respiratory protection for airborne concentrations of asbestos fibers in accordance with OSHA requirements.
- 2.05 ASBESTOS DANGER SIGN** means a sign of sufficient size, which contains the equivalent of the following legend, printed in letters of sufficient size and contrast to be readily visible and legible.



- 2.06 ASBESTOS EVALUATION** means procedures used by a DEQ accredited asbestos inspector to evaluate an asbestos hazard, especially in cases where an asbestos inspection has not been conducted prior to building demolition or renovation activities where building materials have been impacted.
- 2.07 BUILDING OR OTHER STRUCTURE** means the same as facility.
- 2.08 CONTAINMENT AREA** means a negative pressure asbestos project work area and decontamination unit configured so that the asbestos project activities are isolated from areas that are to remain uncontaminated. Containment area means the same as “gross removal enclosure” or “work area” for purposes of this Manual.

SECTION 2.0 – DEFINITIONS – *continued*

- 2.09 CRITICAL BARRIER** means one or more layers of plastic sheeting not less than 6-mil-thick sealed over all openings into a work area or any other similarly placed physical barrier sufficient to prevent airborne asbestos in a work area from migrating to an adjacent area.
- 2.10 DEMOLITION** means the wrecking or removing of any load supporting structural member, including the foundation of any facility together with any related handling operations, or the intentional burning of any facility. It also includes moving or lifting a facility.
- 2.11 ENCAPSULATION** means the treatment of ACM with a material that surrounds or embeds asbestos fibers in an adhesive matrix to prevent the release of fibers, so that the encapsulant creates a membrane over the surface (bridging encapsulant) or penetrates the material and binds its components together (penetrating encapsulant).
- 2.12 ENCLOSURE** means an airtight, impermeable, permanent barrier around ACM to prevent the release of asbestos fibers into the air.
- 2.13 FRIABLE ASBESTOS-CONTAINING MATERIAL** means any material containing more than one percent asbestos as determined using the method specified in Appendix E, subpart E, 40 CFR part 763, Section 1, Polarized Light Microscopy, that, when dry, can be crumbled, pulverized, or reduced to powder by hand pressure. It also includes non-friable ACM that becomes friable. The abatement of friable ACM is regulated by this rule.
- 2.14 GROSS REMOVAL** is the stripping of regulated ACM's within a containment area that is properly constructed and operated, negatively pressurized, and where ACM is stripped using wet methods.
- 2.15 HEPA** (High Efficiency Particulate Air) filter-equipped ventilation fans or vacuums are fans or vacuums equipped with high efficiency particulate air filters capable of trapping and retaining at least 99.97 percent of all mono-dispersed particles of 0.3 microns in diameter.
- 2.16 LEAK-TIGHT** means that solids or liquids cannot escape or spill out. It also means dust-tight.
- 2.17 MISCELLANEOUS ACM** means friable or non-friable ACM on structural components, structural members or fixtures, and does not include surfacing material or thermal system insulation. Miscellaneous friable ACM includes but is not limited to ceiling panels, ceiling tiles, asbestos paper, non-thermal system insulation, and non-surfacing materials. Miscellaneous non-friable ACM includes but is not limited to floor tile, linoleum, cement asbestos products, packings, gaskets, putty, mastics, adhesives, and roofing products.
- 2.18 OSHA** means Occupational Safety and Health Administration, which administers asbestos standards for the construction industry including but not limited to 29 CFR 1926.1101, 29 CFR 1910.1001, and 29 CFR 1910.134.
- 2.19 NON-FRIABLE ASBESTOS-CONTAINING MATERIAL** means any material containing more than one percent asbestos as determined using the method specified in Appendix E, subpart E, 40 CFR part 763, Section 1, Polarized Light Microscopy, that, when dry, cannot be crumbled, pulverized, or reduced to powder by hand pressure. Examples of non-friable ACM include but are not limited to packings,

SECTION 2.0 – DEFINITIONS – *continued*

gaskets, floor tile, linoleum, floor mastic, asphalt roofing, cement asbestos products, concrete, grout, mortar, window putty, and other materials where the asbestos is firmly contained or entombed in a vinyl, asphalt, adhesive, or cement matrix. Non-friable ACM, which has become friable for whatever reason is regulated asbestos-containing material (RACM).

- 2.20 PCM** means Phase Contrast Microscopy used for analyzing air samples using NIOSH 7400.
- 2.21 PLM** means Polarized Light Microscopy used for analyzing building material samples using EPA “Method for the Determination of Asbestos in Bulk Building Materials” (EPA/600/R-93/116).
- 2.22 REGULATED ASBESTOS-CONTAINING MATERIAL (RACM)** means friable ACM, non-friable ACM that has become friable, non-friable ACM that will be or has been subjected to sanding, grinding, cutting, abrading, crumbling, pulverizing, reducing to powder or small fragments, sawing, penetrating, mechanical chipping, drilling, peeling, cracking, weathering, exploding, imploding, or impacting by demolition or renovation operations.
- 2.23 REMOVE** means to take out RACM or facility components that contain or are covered with RACM from any facility.
- 2.24 RENOVATION** means altering a facility or one or more facility components in any way, including the stripping or removal of RACM from a facility component. Operations in which load-supporting structural members are wrecked or taken out are demolitions.
- 2.25 STRIP** means to take off RACM from any part of a facility or facility components.
- 2.26 SURFACING ACM** means material in a building that is sprayed-on, troweled-on, or otherwise applied to surfaces, such as acoustical plaster on ceilings and fireproofing materials on structural members, or other materials on surfaces for acoustical, fireproofing, or other purposes, that contains asbestos. It also includes ceiling tile or ceiling panel, for purposes of inspecting for asbestos.
- 2.27 TEM** means Transmission Electron Microscopy used for the analysis of air samples using the protocol described in Appendix A to subpart E of 40 CFR 763.
- 2.28 THERMAL SYSTEM INSULATION ACM** means material in a building applied to pipes, fittings, boilers, breeching, tanks, ducts, or other interior structural components to prevent heat loss or gain, or water condensation, or for other purposes, that contains asbestos.
- 2.29 WASTE GENERATOR** means the asbestos project contractor or the building owner.

SECTION 3.0

ASBESTOS INSPECTION REQUIREMENTS PRIOR TO DEMOLITION OR RENOVATION ACTIVITIES OF BUILDINGS

Prior to building demolition or renovation activities, the building, or the affected portion of the building that is to be demolish or renovated, must be thoroughly inspected for asbestos. The owner of the building and the demolition/renovation contractor shall ensure the inspection is conducted in accordance with the rules and this Manual. An asbestos inspector who is accredited by the DEQ at the time of the inspection shall make each inspection in accordance with the following procedures.

3.01 INSPECTION

On behalf of the owner or operator of a building renovation or demolition activity, a DEQ accredited asbestos inspector shall:

1. Visually inspect the area(s) to identify the locations of all suspect ACM.
2. Touch all suspect ACM to determine whether they are friable.
3. Collect bulk samples from each surfacing material that is not assumed to be ACM in a statistically random manner that is representative of the surfacing material. Samples shall be collected as follows:
 - a. At least three bulk samples shall be collected from each surfacing material area that is 1,000 ft² or less.
 - b. At least five bulk samples shall be collected from each surfacing material area that is greater than 1,000 ft² but less than or equal to 5,000 ft².
 - c. At least seven bulk samples shall be collected from each surfacing material area that is greater than 5,000 ft².

Additional information on sampling surfacing materials can be found in EPA's pamphlet, Asbestos in Buildings: Simplified Sampling Scheme for Friable Surfacing Materials, EPA 560/5-85-030a.

4. Collect at least one bulk sample from each area of patched thermal system insulation that is not assumed to be ACM if the patched section is less than six linear or square feet.
5. Collect at least three bulk samples from each type of thermal system insulation that is not assumed to be ACM in a randomly distributed manner.
6. Not be required to collect bulk samples where the accredited inspector has determined that the thermal system insulation is fiberglass, foam glass, rubber, or other non-ACM.
7. Collect, in a randomly distributed manner, at least three bulk samples from each insulated mechanical system that is not assumed to be ACM where cement or plaster is used on fittings such as tees, elbows, or valves.

3.01 INSPECTION – Continued

8. Collect, in a randomly distributed manner, at least three bulk samples from each type of miscellaneous material that is not assumed to be ACM.
9. If any type of non-friable suspected ACM is not assumed to be ACM, collect at least three bulk samples from the type of non-friable suspected ACM that is not assumed to be ACM.

3.02 ANALYSIS

The inspector shall ensure:

1. Bulk samples are analyzed by persons or laboratories with proficiency demonstrated by current successful participation in a nationally recognized testing program such as the National Institute of Standards and Technology (NIST) National Voluntary Laboratory Accreditation Program (NVLAP) or the Round Robin for bulk samples administered by the American Industrial Hygiene Association (AIHA), or an equivalent nationally recognized round robin testing program approved by the DEQ.
2. With the exclusion of wallboard system samples, bulk samples are not to be composited for analysis, but shall be analyzed for asbestos content by PLM, using the “Method for the Determination of Asbestos in Bulk Building Materials” (EPA/600/R-93/116) or another method approved by the DEQ.
3. The sample analytical report includes: results of the analysis, method of analysis, name and address of each laboratory performing an analysis, the laboratory’s accreditation number, the date of analysis, and the name and signature of the person performing the analysis.
4. A material is considered not to contain ACM only if the results of all samples required to be collected and analyzed from the material show asbestos in amounts of one percent or less ($\leq 1\%$).
5. A material shall be determined to contain ACM based on a finding that the results of at least one sample collected from that material shows that asbestos is present in an amount greater than one percent ($> 1\%$).

3.03 REPORT

1. The asbestos inspector shall report the findings in a written report to the building owner and/or operator conducting the demolition or renovation activity. The inspection report shall include:
 - a. Site of inspection;
 - b. Scope and purpose of inspection, and how it corresponds to the extent of the renovation or demolition activity;
 - c. Date of inspection;
 - d. Signature of the accredited inspector making the inspection;

3.03 REPORT – Continued

- e. Inspector's accreditation number and expiration date;
 - f. An inventory of all suspect ACM sampled, including all assumed ACM, and sampled materials;
 - g. Sample locations;
 - h. Where ACM(s) is/are located by type;
 - i. Areas where friable suspected ACM is assumed to be ACM, and areas where non-friable suspected ACM is assumed to be ACM; and
 - j. A copy of the sample analytical report with the name and address of each laboratory performing an analysis, the date of analysis, and the name and signature of the person performing the analysis shall be recorded in the inspection report.
2. The report shall also provide information as to whether the ACM needs to be abated in concurrence with the intended demolition or renovation activities, including landfilling, salvaging, or recycling activities, outlined in the scope and purpose of the asbestos inspection.
3. The asbestos inspector, building owner, and operator are responsible for failure to follow these inspection methods including the thoroughness of the inspection.
4. The report shall be made available to the DEQ upon request.

SECTION 4.0
APPLICATION FOR A
MONTANA ASBESTOS ABATEMENT PROJECT PERMIT
AND NESHAP DEMOLITION/RENOVATION NOTIFICATION

In a demolition or renovation of a building where RACM is identified by the asbestos inspection and RACM will be impacted, or where non-friable ACM will become regulated during demolition or renovation activities, the RACM must be removed by an asbestos project contractor using DEQ accredited asbestos project workers and asbestos project contractor/supervisors following proper abatement procedures under an asbestos abatement project permit issued by the Asbestos Control Program. The building owner or asbestos project contractor must apply for the permit using a form available from the Asbestos Control Program called the "Montana Asbestos Abatement Project Permit Application And NESHAP Demolition/Renovation Notification" (Application/Notification).

There is a permit application fee based on the asbestos abatement contract volume. A seven *calendar* day notification period applies to those projects with a contract volume less than \$3,000. A ten *working* day notification period applies to projects with a contract volume of \$3,000 or more. In addition to applying for the permit and paying the fee, the following must be submitted to the Asbestos Control Program:

- a. a project design written by a DEQ accredited asbestos project designer;
- b. a list of accredited asbestos project workers and asbestos project contractor/supervisors assigned to the asbestos project;
- c. a copy of the abatement contract including cost (for purposes of validating the application fee);
and
- d. a fee based on the abatement contract cost.

Directions for completing the form are available. Working day means Monday through Friday and includes holidays that fall on any of the days Monday through Friday.

For building demolition activities where no RACM is identified by the asbestos inspection, the building owner or demolition contractor must notify the Asbestos Control Program of the demolition activity at least ten (10) working days prior to building demolition activities, using the same form as above.

In a renovation where no ACM is identified by the asbestos inspection, no notification to the Asbestos Control Program is required; however, courtesy notifications are encouraged. Courtesy notification is made using the same form as above.

All Montana Asbestos Abatement Project Permit Application And NESHAP Demolition/Renovation Notifications shall be accepted by the DEQ via mail, courier delivery, or hand delivery. Facsimiles must be followed-up by a hard copy by certified mail.

4.01 STANDARD OPERATING PROCEDURE PROJECT DESIGN

An asbestos project contractor may submit a Standard Operating Procedure Project Design (SOP PD), written by a DEQ accredited asbestos project designer to the DEQ for approval. It would replace the requirement to submit a separate project design for each asbestos project permit application for asbestos projects. The DEQ approved SOP PD would apply to asbestos projects conducted in a calendar year.

If an approved SOP PD for a particular asbestos project contractor is on file with the DEQ and deviations to the SOP PD are necessary on a specific asbestos project, the asbestos project contractor is required to submit an asbestos project-specific project design and obtain DEQ approval of the asbestos project-specific project design along with the permit application.

4.02 ALTERNATIVE WORK PRACTICES WAIVER

The asbestos project contractor may submit a request to the DEQ for a waiver of any of the work practices in this Manual. The request must specify for which regulation the contractor requests the waiver and it must contain proposed alternate work practices. The DEQ, on a case-by-case basis, will approve the requests only when the health, safety, and welfare of building occupants/persons are protected adequately by the alternative work practices.

4.03 EMERGENCY PERMITS

Buildings which will undergo renovation or demolition activities must be inspected for the presence of ACM prior to the beginning of such activities. A DEQ accredited asbestos inspector must conduct this asbestos inspection. If the activity is not inspected for ACM prior to beginning renovation or demolition, then RACM discovered after work begins *will not* meet the sudden, unexpected event criteria for an emergency, and abatement of the RACM cannot be performed as an emergency project. An emergency asbestos project permit must be applied for according to ARM 17.74.358.

SECTION 5.0

ASBESTOS ABATEMENT WORK PRACTICES AND PROCEDURES

5.01 GROSS REMOVAL/FULL CONTAINMENT PROCEDURES

A. WORK AREA PREPARATION

The asbestos project contractor or building owner shall:

1. Assign an asbestos project contractor/supervisor accredited by the DEQ to manage the asbestos project, serve as a point of contact, and control access into the work area. The assigned asbestos contractor/supervisor shall be physically present at all times at the work site of abatement activity when abatement actions are occurring and must be accessible to all asbestos project personnel.
2. Require all individuals, other than the building owner or his/her representative, entering the regulated work area of the asbestos project to be accredited by the DEQ as an asbestos project worker or asbestos project contractor/supervisor.
3. Define the work area using barrier tape so it is secure at all times to prevent access of unauthorized visitors or unprotected persons.
4. Ensure that a copy of the project design is at the asbestos project.
5. Post "Asbestos Danger Signs" prominently at all possible points of entry into the work area prior to the disturbance of any RACM.
6. Post on the entrance to the decontamination unit a copy, or original, of the asbestos project permit issued by the DEQ.
7. Require all individuals who enter and exit the work area to sign in and out, by legibly writing or printing their name and accreditation number on a work area sign-in/out sheet. Such sign-in/out sheets shall be maintained at the asbestos project on a day-to-day basis for the duration of the project and shall be available for inspection by the DEQ upon request.
8. Require all individuals who enter the work area to be qualified on, fit tested for, and using an appropriate respirator and wearing appropriate protective clothing.
9. Preclean all furnishings, equipment and fixtures in the work area with a HEPA filter-equipped vacuuming device or by wet cleaning methods and remove these items from the work area or cover and seal with critical barriers.
10. Shut down any heating/ventilation/air conditioning (HVAC) system and isolate with two layers of plastic sheeting not less than 6 mil thick. If the HVAC system cannot be shut down, make special provisions to assure that airborne contamination from the work area cannot enter the ventilation system and be carried to other areas.

A. WORK AREA PREPARATION – *Continued*

11. Install critical barriers to seal doorways, windows, ventilation system openings, electrical boxes, and other openings in the work area. Isolate any elevators, elevator shafts, or stairways located in the work area so neither will affect work area pressure differential.
12. Install critical barriers over cleaned surface areas and nonmoveable items with two layers of plastic sheeting not less than 6 mil thick.
13. Block any floor drains in the work area with critical barriers and do not allow any asbestos waste to enter any drain.
14. Cover floors with at least two layers of plastic sheeting, each of which shall not be less than 6 mil thick, such that both layers extend up the wall at least 12 inches.
15. Securely affix plastic sheeting not less than 4 mil thick on walls to ensure that it will remain in position throughout the length of the project. The plastic enclosure shall be constructed to provide an air-tight seal around ducts and openings into existing HVAC systems and around penetrations for electrical conduits, telephone wires, water lines, drain pipes, and any other object. The plastic sheeting on walls, and floors, and ceilings if necessary, shall be supported in a manner so that the enclosure will not fall down during normal use. If plastic sheeting falls down, the asbestos project contractor shall decontaminate exposed surfaces prior to re-erection of plastic sheeting.
16. Notify the DEQ of the date and nature of any occurrence of asbestos contamination and of the cleanup and testing measures that were used within 24 hours of the incident.
17. Place wall sheeting to the interior of the work area (i.e., over both layers of floor sheeting) so that moisture is shed to the interior of the work area.
18. Ensure that wall sheeting overlaps the floor sheeting and seal wall sheeting to floor sheeting to provide a leak-proof barrier.
19. Walls or floors from which RACM is to be abated need not be covered with plastic sheeting as otherwise required.
20. Deactivate electrical circuits in the enclosure unless equipped with ground-fault circuit interrupters.
21. Install and operate HEPA filter-equipped ventilation fans so that air will be continually circulated throughout all locations within the work area.
22. Install a 12" by 12" clear view port in the wall of the plastic sheeting for purposes of viewing abatement work activities from outside the work area.
23. Ensure that the HEPA filter-equipped ventilation fans have the capacity to replenish the entire volume of air contained in the work area every 15 minutes or less.

A. WORK AREA PREPARATION – *Continued*

24. Discharge air from the work area via the HEPA filter-equipped ventilation fans to the outside of the building away from the building's fresh air intake or any other buildings' fresh air intake so that it is not drawn into the building(s) or neighboring building(s).
25. Operate the HEPA filter-equipped ventilation fans in a manner that will establish and maintain a flow of air into the work area from all adjacent areas and away from abatement personnel.
26. Demonstrate proper airflow by use of smoke-producing bombs inside the decontamination unit and work area, and smoke-producing tubes, or smoke-producing matches, outside the work area, pressure differential readings, or other appropriate means and record the results before starting an asbestos project and at the start of each shift of operation. Document inspections in writing and have records available for DEQ inspection for 30 years.
27. A minimum of -0.02 column inches of water pressure differential, relative to outside pressure, shall be maintained within the work area as evidenced by manometric measurements. Negative pressure readings shall be documented using a manometer equipped with a strip chart throughout asbestos abatement activities. Retain hard copy of strip chart manometer readings for DEQ inspection for 30 years.
28. Monitor enclosure integrity throughout the duration of abatement activities by inspecting enclosure and decontamination unit before abatement commences, before each work shift, and at the end of the day. Document inspections in writing and have records available for DEQ inspection for 30 years.
29. Repair any damage noted in the plastic sheeting immediately.
30. Operate the HEPA filter-equipped ventilation fans continually throughout the duration of the project until the Final Visual Inspection and Final Air Clearance Sampling and Testing procedures of Section 6 have been completed.

B. DECONTAMINATION UNIT

The assigned asbestos project contractor/supervisor accredited by DEQ shall:

1. Make all decontamination unit areas (clean shower, equipment rooms) contiguous to each other and the work area unless connected to one another by enclosed passageways that are isolated effectively from areas intended to remain free from asbestos contamination.
2. Seal decontamination unit completely to ensure that the sole source of airflow through the decontamination unit originates from uncontaminated areas outside the decontamination unit and work area.
3. Install airlocks in all connecting doorways in the decontamination unit and at the entrance to the decontamination unit.

B. DECONTAMINATION UNIT – *Continued*

4. Secure the decontamination unit and work area by installing a lockable door on the clean side of the clean room, unless a secondary lockable door is available. Lock the door when removal activities are not in progress, i.e. night, breaks, and other non-work times.
5. Construct and operate an equipment room by:
 - a. Locating the equipment room so that it must be traversed before the shower room can be entered from the work area.
 - b. Constructing using the same requirements as for the work area.
 - c. Requiring all individuals after leaving the work area to enter the equipment room to remove all appropriate protective clothing.
 - d. Providing facilities in the equipment room for temporary storage of tools and equipment used in the work area.
6. Construct and operate a shower room by:
 - a. Locating the shower room so that it must be traversed before any individual can move into the clean room from the work area.
 - b. Constructing the shower enclosures to be leak-proof and use easily washable or disposable units.
 - c. Providing the shower room with at least one showerhead that is supplied with hot and cold water.
7. Require all individuals to shower with soap and water before entering the clean room.
8. Require all individuals to remove HEPA filter cartridges from respirators before leaving the shower and dispose of as asbestos waste.
9. Drain, collect and filter shower water through a system with the capability to collect particles 5.0 microns in size, at a minimum, and discharge into a sanitary sewer or other state or federally approved waste disposal system.
10. Assure that an air gap is present between the shower water discharge line and any sanitary sewer or approved disposal system.
11. Construct and operate a clean room by:
 - a. Locating the clean room so that it will be the last room traversed by any individual exiting the work area.
 - b. Providing facilities in the clean room for removing or donning street clothing, donning appropriate respiratory protection, performing positive and negative pressure checks of respirator, and donning appropriate protective clothing or other protective equipment required to be worn in the work area.
12. Monitor decontamination unit integrity throughout duration of abatement activities by inspecting unit before abatement commences, before each work shift, and at the end of the day, and recording inspections in writing.

B. DECONTAMINATION UNIT – Continued

13. Repair any damage to the decontamination unit immediately and document damage and repair actions in writing.
14. The decontamination unit must remain attached to the work area, intact, and functional until the asbestos project is complete.
15. Prior to conducting Final Visual Inspection and Final Air Clearance Sampling and Testing procedures cited in Section 6, clean the decontamination unit, including the shower, shower pan, shower water filtration system, and equipment room of any asbestos debris including used towels, respirator cartridges, and appropriate protective clothing. Dispose of asbestos debris in leak-tight wrapping and in accordance with Sections 5.09.A. and B.

C. WORK PRACTICES

The asbestos project contractor shall use wet methods for asbestos abatement projects as follows:

1. Saturate all exposed surfaces of the RACM to be removed with a water solution that contains an effective wetting agent or with a removal surfactant.
2. Apply the wetting solution with a low pressure spraying system.
3. Determine the effectiveness of the solution in penetrating the RACM by applying it to a small representative sample of the material before work is initiated.
4. Maintain all RACM removed, including any fallen residue, in an adequately wet condition to prevent the release of any fibers. All RACM shall remain wet until disposed of in a Department-approved asbestos waste disposal site.

Refer to EPA document Asbestos/NESHAP Adequately Wet Guidance, EPA Publication 340/1-90-019, December 1990 for additional information.

5. Do not allow any visible asbestos-containing debris or residue to accumulate. The work area shall be free of visible asbestos-containing debris at the end of each work shift.
6. Use abatement tools and techniques that will not damage plastic sheeting.
7. Ensure the asbestos waste is properly packaged in leak-tight containers.
8. Ensure the waste containers are labeled with the name of the waste generators (asbestos project contractor and building owner), the location at which the waste was generated, and proper labels required by the Department of Transportation, 49 CFR Parts 171 and 172, and OSHA, 29 CFR 1926.1101.

C. WORK PRACTICES – *Continued*

9. Manifest the waste prior to transportation and disposal using a Waste Shipment Record, Waste Manifest Record, or equivalent. Copies of Waste Shipment Record sheets can be obtained from the DEQ or found in 40 CFR Part 61, Subpart M.
10. Handle each waste container to prevent damage, breakage or opening.

D. CLEANING

1. The asbestos project contractor shall clean the work area and surfaces from which asbestos was stripped following gross removal of RACM.
2. After RACM removal is complete, clean all plastic sheeting and surfaces in the work area and decontamination unit, and clean equipment and tools used on the asbestos abatement project free of all visible residue with a HEPA filter-equipped vacuuming device or by wet cleaning methods. If more than one layer of plastic sheeting has been used on walls, the inner layer of plastic sheeting and one layer of plastic sheeting from the floors may be removed and disposed of as asbestos waste instead of being cleaned. Tools may be wrapped in leak-tight wrapping, the wrapping decontaminated, and removed from the work area without having to decontaminate each tool.
3. Remove any liquid or material that has leaked through these additional layers of sheeting with a HEPA filter-equipped vacuuming device or by wet cleaning methods.
4. Dispose of the removed plastic sheeting as asbestos waste in accordance with Section 5.09.A. and B.
5. Examine the work area to determine whether all RACM, dust or debris has been removed. If any RACM, dust or debris is found, the work area shall be recleaned. If RACM, dust or debris has collected outside of the enclosure as a result of a breach of containment, the area behind the breach shall be cleaned and the barrier immediately repaired. The area must be tested for asbestos contamination using Final Visual Inspection and Final Air Clearance Sampling and Testing procedures outlined in Section 6.
6. Following final cleaning procedures, encapsulant may be applied to cleaned surfaces from which RACM has been removed with an effective encapsulating material. The encapsulating material may be color-tinted to assist detection. Reclean as necessary to pass Final Visual Inspection and Final Air Clearance Sampling and Testing.
7. After the encapsulant has dried completely, remove plastic sheeting from everything except the critical barriers, airlocks, and other openings. The work area shall be dry prior to conducting Final Air Clearance Sampling and Testing in accordance with Section 6.
8. Clean all previously covered surfaces free of all visible residue with a HEPA filter-equipped vacuuming device or by wet cleaning methods.

D. CLEANING – Continued

9. Perform Final Visual Inspection and Final Air Clearance Sampling and Testing in accordance with Section 6.
10. When the final visual inspection and final air clearance monitoring actions required above are complete, disassemble the remaining elements of the containment and ensure that the surfaces of all structures, furnishings, equipment and fixtures are free of all visible residue, including any which existed prior to the start of the project.
11. Treat all removed plastic sheeting, all filters, waste and debris as RACM in accordance with Section 5 and transport and dispose of as asbestos waste in accordance with Sections 5.09. A. and B.
12. Complete the Waste Shipment Record. Maintain Waste Shipment Records in accordance with section 5.09. A. 2.

5.02 WORK PRACTICES FOR REMOVAL OF RACM USING A GLOVE BAG

An asbestos project contractor using a glove bag to remove RACM from the surface of pipes or other similar conduits, shall:

1. Establish general security and management work practices in accordance with Section 5.01. A. 1. through 30. Glove bag removal operations performed inside a building shall be conducted within a mini-enclosure constructed of plastic sheeting such as defined in Section 5.03. The purpose of the enclosure is to contain any asbestos fibers that may escape the glove bag in the event the glove bag fails. The enclosure also serves as a secondary containment in which the Final Visual Inspection and Final Air Clearance Sampling and Testing procedures shall be conducted.
2. Establish a decontamination unit constructed and operated as outlined in Section 5.01. B. 1. through 15.
3. Have glove bags made of a minimum of 6-mil thick plastic that are seamless at the bottom.
4. Use glove bags only once. Do not “slide” glove bags. Do not reuse for any purpose. Use glove bags in accordance with the manufacturer’s instructions.
5. Not use glove bags on surfaces whose temperature exceeds 150°F.
6. Install the glove bag so as to provide an airtight seal around the area from which the RACM is to be removed.
7. Have glove bags smoke tested for leaks and any leaks sealed prior to use.
8. Have at least two DEQ accredited asbestos project contractor/supervisors, or one Montana accredited asbestos worker and one Montana-accredited asbestos project contractor/supervisor, perform each glove bag removal operation.
9. Avoid damaging or disturbing any other ACM within the work area that is not intended to be removed using the glove bag.

5.02 WORK PRACTICES FOR REMOVAL OF RACM USING A GLOVE BAG – *Continued*

10. Maintain airtight seal continually until all RACM has been removed and the surface of the item enclosed within the glove bag has been cleaned.
11. Adequately wet RACM to be removed with an amended water solution that contains an effective wetting agent or with a removal surfactant.
12. Maintain removed RACM within the glove bag in an adequately wet condition.
13. Discontinue activity in the work area immediately if there is any asbestos contamination of the general work area resulting from damage to or improper use of the glove bags, or damage to other ACM located within the area. Do not resume project activities until all surfaces in the work area that possibly have become contaminated with asbestos have been cleaned thoroughly with a HEPA filter-equipped vacuuming device or by wet cleaning methods. Verify decontamination via Final Visual Inspection and Final Air Clearance Sampling and Testing procedures outlined in Section 6.
14. Notify the DEQ of the date and nature of any occurrence of asbestos contamination and of the cleanup and testing measures that were used within 24 hours of the incident.
15. After RACM has been removed, clean surfaces from which RACM has been removed.
16. Coat cleaned surfaces from which RACM has been removed with an effective encapsulating material. The encapsulant may be tinted to aid detection.
17. Collapse the glove bag using the HEPA-filtered vacuum and seal the bag with duct tape.
18. Remove the glove bag, place glove bag in second asbestos disposal bag and seal leak-tight.
19. Recover or restore cleaned surfaces or securely enclose rough edges of RACM that remain after glove bag removal. The use of duct tape is not satisfactory for this purpose. Palm-grade encapsulant or equivalent shall be used to seal rough edges of RACM.
20. Meet the requirements of Final Visual Inspection and Final Air Clearance Sampling and Testing procedures in Section 6.

5.03 ASBESTOS ABATEMENT USING MINI-ENCLOSURE PROCEDURES

An asbestos project contractor may utilize mini-enclosures to abate asbestos-containing materials. A mini-enclosure is a small walk-in enclosure that accommodates no more than two persons. The purpose of the enclosure is to contain any asbestos fibers that may escape the glove bag in the event the glove bag fails. The enclosure also serves as a secondary containment in which the final visual inspection and final air clearance samples shall be collected. It may be used if the disturbance or removal can be completely contained by the enclosure with the following specifications and work practices.

The asbestos project contractor shall:

1. Establish general security and management work practices in accordance with Section 5.01.A.1. through 30.

5.03 ASBESTOS ABATEMENT USING MINI-ENCLOSURE PROCEDURES – *Continued*

2. Establish a decontamination unit constructed and operated as outlined in Section 5.01 B.1. through 15.
3. Fabricate or install a job-made enclosure constructed of two layers of 4 mil plastic. If the mini-enclosure is to be used in conjunction with glove bag removal procedures, the mini-enclosure walls shall consist of one layer of plastic sheeting not less than 6 mil thick. If abatement is not conducted in conjunction with glove bag procedures, the mini-enclosure walls shall consist of two layers of plastic sheeting not less than 4 mil thick. A mini-enclosure floor shall consist of two layers of plastic sheeting not less than 6 mil thick.
4. Place the mini-enclosure under negative pressure by means of a HEPA-filtered vacuum or similar ventilation unit. If the mini-enclosure is to be used in conjunction with glove bag removal procedures, the mini-enclosure and glove bag set up shall be engineered where mini-enclosure negative pressure does not exceed the negative pressure inside the glove bag.
5. Inspect the mini-enclosure for leaks and smoke-test to detect breaches, and seal breaches before use.
6. Follow procedures outlined in Section 5.02 of this Manual if glove bag removal procedures apply.
7. Follow procedures outlined in Section 5.01 of this Manual if gross removal procedures apply.
8. Follow procedures outlined in Section 5.04, 5.05, or 5.06 of this Manual if enclosure, encapsulation, or wrap and cut abatement procedures apply respectively.
9. Meet the requirements of Section 6 for Final Visual Inspection and Final Air Clearance Sampling and Testing procedures.

5.04 WORK PRACTICES FOR ENCLOSURE OF RACM

When using an enclosure as a method of controlling asbestos fiber release from RACM, the asbestos project contractor shall:

1. Establish general security and management work practices in accordance with Section 5.01 A. 1. through 30.
2. Establish a Decontamination Unit constructed and operated as outlined in Section 5.01 B 1. through 15.
3. Ensure that the area containing the RACM to be enclosed can be sealed airtight within the enclosure and that the underlying structure can support the weight of the enclosure. Install the enclosure in such a manner as to minimize disturbance of RACM.
4. Designate enclosed RACM by labels, signs, charts or color codes in order to warn building maintenance personnel or contractors in the event the enclosure must be disturbed or if future renovation or demolition activities will impact the RACM.

5.04 WORK PRACTICES FOR ENCLOSURE OF RACM – Continued

5. Meet the requirements of Final Visual Inspection and Final Air Clearance Sampling and Testing procedures of Section 6.

5.05 WORK PRACTICES FOR ENCAPSULATING RACM

When using encapsulation as a method of controlling asbestos fiber release from RACM the asbestos project contractor shall:

1. Establish general security and management work practices in accordance with Section 5.01. A.1. through 30.
2. Establish a Decontamination Unit constructed and operated as outlined in Section 5.01. B.1. through 15.
3. Require use of appropriate respirators and clothing that provide protection against asbestos and any potentially hazardous chemicals contained in the encapsulant.
4. Not apply encapsulant to fibrous sprayed-on RACM or to cementitious RACM that shows poor adhesion to the surface to which it is to be applied.
5. Not apply encapsulant to RACM installed on surfaces subject to frequent abrasion or other physical damage.
6. Use an encapsulant with flame retardant characteristics.
7. Prior to starting the project, demonstrate adhesive and penetrating characteristics of a penetrating encapsulant or adhesive characteristics of a bridging encapsulant as follows:
 - a. Conduct testing at one or more randomly selected locations within the structure.
 - b. Apply the encapsulant to the surface of the material in accordance with the manufacturer's instructions and in such a manner as to minimize release of asbestos fibers.
 - c. Remove a core sample and examine for adequate penetration and/or adhesion.
 - d. Repair test core holes immediately after the inspection.
 - e. Document results of the testing.
 - f. Repair damaged portions of a surface to which the encapsulant is to be applied with asbestos-free patching material.
 - g. Ensure the patching material adheres to existing surfaces and provides a base for application of the encapsulant.
 - h. Repair immediately any damage to the encapsulant that occurs when fixtures or other items are reinstalled.
 - i. Clean any asbestos that is released by this damage immediately with a HEPA-filter equipped vacuuming device or by wet cleaning methods.

5.05 WORK PRACTICES FOR ENCAPSULATING RACM – *Continued*

3. Designate encapsulated ACM by labels, caution signs, charts or color codes in order to warn building maintenance personnel or contractors in the event the encapsulated material must be disturbed or if future renovation or demolition activities will impact the RACM.
4. Meet the requirements of Section 6, Final Visual Inspection and Final Air Clearance Sampling and Testing procedures.

5.06 WORK PRACTICES FOR RACM RELATED DISMANTLING PROJECTS OF PIPING AND DUCTWORK (WRAP AND CUT)

The asbestos project contractor, when structural or equipment items, such as pipe or ductwork, covered with RACM are intended to be removed without stripping the RACM from the piping or ductwork, shall:

1. Establish general security and management work practices are established in accordance with Section 5.01. A. 1. through 30.
2. Establish a decontamination unit constructed and operated as outlined in Section 5.01. B. 1. through 15.
3. Securely enclose in two layers of plastic sheeting not less than 6 mil thick any exposed RACM remaining on structural items or equipment items before removing from the work area.
4. Use gross removal procedures, glove bag removal procedures, or mini-containment removal procedures outlined in Section 5, and remove RACM to expose the surface of the structural or equipment items to be wrapped and cut.
5. Perform cutting of structure or equipment item in a manner that will not disturb RACM.
6. Remove material as intact sections or components.
7. Lower the enclosed items carefully to ground level and do not drop, throw or slide while handling.
8. Meet the requirements of Final Visual Inspection and Final Air Clearance Sampling and Testing procedures in Section 6.

5.07 WORK PRACTICES FOR RACM RELATED DEMOLITION PROJECTS (WRECKING, RAZING, BURNING, LIFTING, MOVING OF BUILDINGS)

A building owner or contractor shall:

1. Not demolish a building that contains RACM or ACM that will become RACM, until such material has been removed from the building. To remove RACM from a building scheduled to be demolished, the asbestos project contractor shall comply with applicable requirements of Section 5.

5.07 WORK PRACTICES FOR RACM RELATED DEMOLITION PROJECTS – Continued

2. Remove non-friable ACM from building materials including but not limited to concrete or other building components prior to demolition if those building materials will be pulverized, salvaged, recycled, or reused.
3. Conduct at a minimum, Final Visual Inspection procedures outlined in Section 6.01 if the building will not be re-occupied following asbestos abatement activities and before demolition. Final Air Clearance Sampling and Testing may be conducted if desired.
4. Conduct Final Visual Inspection procedures and Final Air Clearance Sampling and Testing in accordance with Section 6 of this manual if the work area will be re-occupied after abatement activities.

Additional information on demolition activities can be found in EPA's guidance manual, "A Guide to Normal Demolition Practices Under the Asbestos NESHAP," EPA 340/1-92-013, September 1992.

5.08 WORK PRACTICES FOR PROJECTS IN TUNNELS AND CRAWL SPACES

If an asbestos project involves a tunnel or crawl space that is or will be directly accessible from an occupied area, the asbestos abatement contractor shall:

1. Establish general security and management work practices in accordance with Section 5.01. A.1. through 30.
2. Establish a decontamination unit constructed and operated as outlined in Section 5.01. B. 1. through 15.
3. Establish negative air pressure.
4. Establish and manage a containment area in accordance with the work practices of Section 5.01 A. and B. Such work practices need not include the use of plastic sheeting for walls or floors within the containment area as required by Section 5.01. A. 1. through 15, but shall require the use of critical barriers and plastic sheeting drop cloths on the floor immediately beneath the location where RACM is being actively removed. Such work practices shall not include the requirement for aggrading the air with leaf blowers or fans prior to performing final clearance air sampling as required by Section 6.
5. Preclean all gross contamination and RACM debris and soil contamination on the floor of the tunnel or crawl space by wet cleaning methods and place directly into 6-mil-thick asbestos waste disposal bags before starting removal of in-place ACM.
6. Conduct abatement in accordance with Section 5.
7. Meet the requirements of Final Visual Inspection and Final Air Clearance Sampling and Testing procedures in Section 6.

5.09 ASBESTOS WASTE TRANSPORTATION AND DISPOSAL**A. TRANSPORTATION**

A DEQ accredited asbestos project worker or asbestos project contractor/supervisor conducting asbestos waste transportation shall:

1. Acquire the Waste Shipment Record from the RACM waste generator (building owner or asbestos project contractor). Copies of Waste Shipment Record sheets and instructions can be obtained from the DEQ or can be found in 40 CFR Part 61, Subpart M.
2. Verify the information on the Waste Shipment Record for all RACM waste transported off the abatement site. The Waste Shipment Records shall include:
 - a. The name, address, and telephone number of the waste generator;
 - b. The Administrator (Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901);
 - c. The approximate quantity of RACM waste in cubic meters, cubic yards, or number and size of disposal containers;
 - d. Asbestos project permit number issued by the DEQ;
 - e. The name and telephone number of the disposal site operator;
 - f. The name and physical site location of the disposal site;
 - g. The date transported;
 - h. The name, address, and telephone number of the transporter(s); and
 - i. A certification that the contents of this consignment are fully and accurately described by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.
5. Ensure the asbestos waste is adequately wet.
6. Require all individuals who transport or handle asbestos waste to be qualified on, fit-tested for, and using an appropriate respirator and wearing appropriate protective clothing.
7. Load containers containing RACM waste into a dumpster, trailer, or similar transport device lined with plastic sheeting not less than 6 mil thick.
8. Ensure the dumpster, trailer, or similar transport device shall be placarded with Asbestos Danger Signs as it is being loaded and unloaded.
9. Store any RACM removed from the work area but not yet delivered to an approved asbestos waste disposal site in a secure holding facility or location accessible only to persons accredited by the DEQ.

5.09 A. TRANSPORTATION – Continued

10. Transport waste in vehicles operated by or escorted by a DEQ-accredited asbestos project worker or asbestos project contractor/supervisor.
11. Retain handling responsibility for asbestos waste until the waste is delivered to and accepted by the operator of a DEQ-approved asbestos waste disposal site and a receipt of the Waste Shipment Record is received and made a part of the project file.

B. DISPOSAL

When the RACM waste enters the DEQ approved asbestos waste disposal site, the operator of the DEQ-approved disposal site shall:

1. Acquire the Waste Shipment Record from the transporter and verify information on the Waste Shipment Record.
2. Verify the information on the Waste Shipment Record for all RACM waste received from the asbestos transporter. The Waste Shipment Records shall include:
 - a. The name, address, and telephone number of the waste generator;
 - b. The Administrator (Department of Environmental Quality, P.O. Box 200901, Helena, MT 59620-0901);
 - c. The approximate quantity of RACM waste in cubic meters, cubic yards, or number and size of disposal containers;
 - d. Asbestos project permit number issued by the DEQ;
 - e. The name and telephone number of the disposal site operator;
 - f. The name and physical site location of the disposal site;
 - g. The date transported;
 - h. The name, address, and telephone number of the transporter(s);
 - i. A certification that the contents of this consignment are fully and accurately described by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and government regulations.
3. Verify the asbestos waste is adequately wet and sealed in leak-tight wrappings or containers.
4. Require all individuals who dispose or handle asbestos waste to be qualified on, fit tested for, and using an appropriate respirator and wearing appropriate protective clothing.
5. Ensure all asbestos-containing waste material is deposited as soon as is practical by an asbestos worker or asbestos contractor/supervisor accredited by the DEQ at a Class II waste disposal site approved by the DEQ. The requirements of paragraph B of this Section do not apply to non-friable ACM that is not RACM; however, it is recommended to contact the landfill for its packaging and disposal requirements.

5.09 B. DISPOSAL – Continued

6. Ensure the dumpster, trailer, or similar transport device is placarded with Asbestos Danger Signs as it is being unloaded.
7. Cover asbestos waste with six inches of non-asbestos cover by the end of the landfill operational day.
8. Provide a copy of the Waste Shipment Record to the disposal site owners or operators at the same time as the asbestos-containing waste material is delivered to the disposal site.
9. For waste shipments where a copy of the Waste Shipment Record signed by the owner or operator of the designated disposal site and not received by the waste generator within 35 days of the date the waste was accepted by the initial transporter, contact the transporter and/or the owner or operator of the designated disposal site to determine the status of the waste shipment.
10. Report in writing to the Asbestos Control Program if a copy of the Waste Shipment Record, signed by the owner or operator of the designated waste disposal site, is not received by the waste generator within 45 days of the date the waste was accepted by the transporter. The report shall include:
 - a. A copy of the Waste Shipment Record for which a confirmation of delivery was not received; and
 - b. A cover letter signed by the waste generator, explaining the efforts taken to locate the asbestos waste shipment and the results of those efforts.
11. Retain a copy of all Waste Shipment Records, including a copy of the Waste Shipment Record signed by the owner or operator of the designated waste disposal site, for at least two years.
12. Provide the Waste Shipment Records to the Department upon request.

For additional information refer to EPA's "Reporting And Recordkeeping Requirements For Waste Disposal, A Field Guide," EPA 340/1-90-016, November 1990.

SECTION 6.0

FINAL VISUAL INSPECTION AND FINAL AIR CLEARANCE SAMPLING AND TESTING

Completing an asbestos project is based on successfully fulfilling the criteria of a Final Visual Inspection and Final Air Clearance Sampling and Testing.

6.01 All persons performing final visual inspections and final clearance air sampling shall:

- a. Be accredited by the DEQ as an asbestos project worker or asbestos project contractor/supervisor.
- b. Not be contractually associated with the asbestos project contractor conducting the asbestos project.
- c. Wear appropriate protective clothing and appropriate respiratory protection when entering and occupying the work area.
- d. Verify that the associated HEPA filter-equipped ventilation fans within the work area are in operation, the work area surfaces are dry, and only critical barriers, airlocks, and a decontamination unit are in place.
- e. Visually observe the entire work area and decontamination unit to verify that the asbestos project contractor has removed all RACM, dust, and debris from the work area and decontamination unit.
- f. Require re-cleaning by the asbestos project contractor and subsequent visual inspections until the parties are satisfied no visible RACM, dust, or debris exists in the work area or decontamination unit.
- g. Complete a written affidavit which is to be signed by the person(s) conducting the Final Visual Inspection and the asbestos project contractor/supervisor, attesting to the fact that the work area and decontamination unit are free of RACM, dust, and debris.

6.02 All persons collecting final air clearance samples shall:

- a. Ensure final clearance air sampling and testing are not performed until after the asbestos project contractor/supervisor and the person performing final clearance air sampling have completed the Final Visual Inspection in accordance with Section 6.01.
- b. Once the work area has passed the Final Visual Inspection, sweep an air stream from a high-speed blower or equivalent air-blowing device across all surfaces in the work area for a time adequate to disturb air in all areas of the work area prior to beginning final air clearance sampling.
- c. Ensure the air is continually agitated, creating maximum air disturbance in all potentially occupied areas (i.e., continually running box fans) during the collection of final clearance air samples. Agitating the air in the work area prior to final air clearance sampling is not required where asbestos abatement has occurred in unoccupied areas such as crawl spaces.

6.02 All persons collecting final air clearance samples shall: – *Continued*

- d. Immediately after agitating the air in the work area, begin collecting at least five final clearance air samples in the work area. Air sampling locations shall be dispersed throughout the work area.
- e. Ensure each of the required five air samples above are collected in an enclosure maintained as required by Section 5.
- f. For asbestos projects using more than a single mini-enclosure within a space contained by four walls and a ceiling, ensure the mini-enclosures are sampled by taking at least one air sample in accordance with Section 5.03 within each mini-enclosure. If more than five mini-enclosures are used in a space contained by four walls and a ceiling, at least five aggressive air samples must be collected. The first four air samples must be gathered from those mini-enclosures where the greatest potential for asbestos exposure exists; the fifth sample must be taken in the last mini-enclosure in which asbestos abatement occurred.
- g. For asbestos abatement projects in which glovebags are used, have at least one aggressive air sample collected in the immediate area of each glovebag, with at least five air samples collected for each space contained by four walls and a ceiling. If more than five glovebags are used in a space contained by four walls and a ceiling, at least five air samples are required for that space. The five samples must be gathered from areas where the greatest potential for asbestos exposure exists.
- h. Collect five samples of air, each sample no less than 1,199 liters, by using an air sampling pump capable of drawing a volume that is equal to or greater than 1,199 liters of air through each of the five millimeter filters at a rate equal to or greater than one liter and less than ten liters per minute. The flow rate for each of the air sampling pumps shall be calibrated by a primary or secondary source at the beginning and end of the sampling period.
- i. Ensure cassettes are placed five to six feet above the floor at a 45 degree angle down. Cassettes shall be uniformly distributed throughout the work area. At least one cassette shall be in each room. If the work area contains more than five rooms, select a representative sample of rooms. Each cassette shall be subject to normal air circulation, avoiding room corners, walls, ceilings, obstructed locations, and sites near windows, doors, or vents.
- j. During final air clearance sampling procedures, retain the airtight seals for the containment area in place and operate the associated HEPA filter-equipped ventilation fans until the results of clearance air sampling under PCM show that the airborne contamination level within the work area is not greater than 0.01 fibers per cubic centimeter (0.01 f/cc) as determined by the NIOSH 7400 method or an equivalent method or not greater than 70 structures per square millimeter (70 s/mm²) as determined by the EPA TEM set forth in Appendix A to 40 CFR 763 or an equivalent method for each of five air samples.

6.03 PCM analysis shall be conducted by a person certified in the NIOSH 582 or 582E sample collection and analytical method and shall participate in a round robin quality assurance/quality control program for PCM analysts.

- 6.04** Laboratories that are accredited by the National Voluntary Laboratory Accreditation Program shall conduct TEM sample analysis.
- 6.05** The DEQ may grant a waiver from Section 6.02. j. when the environment of the asbestos project is chronically contaminated by fibers, and it is determined that the asbestos fiber content does not exceed the maximum allowable concentration as outlined in 40 CFR 763.90(i). The person in charge of the project may demonstrate the presence of a chronically contaminated environment by establishing a history showing the percentage of asbestos fibers contained in samples taken in that environment using a method of sampling and analysis prescribed by the DEQ.
- 6.06** Persons having air samples analyzed shall only use laboratories accredited by the American Industrial Hygiene Association (AIHA) or laboratories that participate in the AIHA proficiency analytical testing (PAT) program and that have received a “proficient” rating for asbestos PCM samples. For sampling and sampling analysis, a quality assurance program must be implemented as described in the NIOSH 7400 method or in accordance with 29 CFR 1926.1101, Appendix A—Quality Control Procedure. Quality assurance records and PAT results must be submitted, upon request, to the DEQ.
- 6.07** All persons conducting Final Visual Inspections and Final Air Clearance Sampling and Testing shall document the:
- a. Name of the asbestos project contractor/supervisor conducting final visual inspection;
 - b. Name of the final air clearance sampling person conducting the final visual inspection and final air clearance sampling and testing. If the person collecting the final air clearance samples is not the person analyzing the samples, document analyst’s name, address, phone number, and proof of analyst’s training and certification;
 - c. Name and address of building site and location of asbestos abatement project;
 - d. Asbestos abatement project permit number as issued by the DEQ;
 - e. Date of final visual inspection and final air clearance sampling;
 - f. Whether the work area was agressed;
 - g. Number of samples collected;
 - h. Type of samples, i.e. PCM or TEM;
 - i. Statement of whether final visual inspection and final air clearance sampling documented completion of the asbestos project; and
 - j. Signatures of project contractor/supervisor and final air clearance sampling person attesting to the completion of the asbestos project.
- 6.08** Results of the Final Visual Inspection and Final Air Clearance Sampling and Testing shall be maintained by the asbestos project contractor and by the person who performed the sampling and shall be made available to the DEQ within five working days of a request.
- 6.09** Aggressing the air in the Final Air Clearance Sampling and Testing is not required for buildings that will undergo demolition immediately after abatement activities are finished and will not be reoccupied.
- 6.10** At a minimum, the asbestos project contractor shall conduct a Final Visual Inspection, in accordance with Section 5, for those buildings that will be demolished immediately following abatement activities where the building will not be reoccupied. Final Air Clearance Sampling and Testing may be conducted if desired.